

ENTOMOLOGICAL NEWS

VOL. LXVIII

OCTOBER, 1957

No. 8

Some Psocoptera from Tikal, Guatemala

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The psocids discussed in this paper were collected at Tikal, Department of Peten, Guatemala, in late winter and spring of 1956 by Dr. Irving J. Cantrall of the University of Michigan Museum of Zoology, Ann Arbor. The material consists of seven specimens representing seven species, seven genera, and four families. Five of the species are new and are described below; the other two may be new. To my knowledge, these are the first published records of Guatemalan psocids. The meagre information on psocids of Central America in general suggests that a very rich fauna must exist in that region.

Two genera used in this paper have not previously appeared in the New World literature. The genus *Ghesquierella* Badonnel is based on African material, but the similarities between the Guatemalan species and the African genotype are sufficiently striking to indicate a probable close relationship. The genus *Psocidus* Pearman was erected to include all forms in the Psocidae which cannot be placed in one of the existing genera. Until the relationships of such forms become better understood, it seems advisable to continue using *Psocidus* in this way rather than to erect new genera.

FAMILY PTILONEURIDAE

Loneura splendida new species (♀)

Diagnosis: Near *L. brasiliensis* Roesler, differing in the following forewing characters: cell R_{2+3} proportionally much

longer; a premarginal band of connected spots from vein M_5 to R_{4+5} ; each spot centered on a vein. Clouded area below vein Cu_1 much larger than in *L. brasiliensis*, extending below vein An .

Measurements: Total body length 2.97 mm.; forewing length 4.93 mm.; hindwing length 3.24 mm.; posterior tibia length 2.07 mm.; posterior tarsus length— T_1 0.84 mm., T_2 0.06 mm., T_3 0.15 mm.

Morphology: Ocelli close together on a prominent ocellar interval; anterior ocellus smaller than posteriors. $IO/D = 1.22$, $PO/D = 0.78$. Lacinia broad distally, with an apical toothed area separated by a notch from a large preapical tooth. Maxillary palpi long and slender; terminal segment nearly as long as the preceding two segments together. Middle and posterior tarsi each with a single row of ctenidia, with the numbers per segment as follows: middle tarsus— T_1 17, T_2 1, T_3 3; posterior tarsus— T_1 24, T_2 1, T_3 4. Wing venation and ciliation similar to that of *L. brasiliensis*, the chief differences being in forewing, where Rs from the point where it leaves $r-m$ crossvein to the point where it forks proportionally much shorter than in *L. brasiliensis*, whereas radial fork proportionally much longer; vein M_5 branched in right wing, the anterior branch rebranching in left wing. Subgenital plate with rounded posterior margin; pigmented area of subgenital plate in form of a broad U, ends of which are curved outward. Gonapophyses (Fig. 7): first valvula slender, about three-quarters length of second valvula, bearing a few tiny spines near apex; second valvula with recurved apex, bearing numerous slender spines; rudimentary third valvula bearing only a few hairs. Interior genital plate (Fig. 8) nearly as large as subgenital plate. Paraprocts bearing many hairs and near their median margins numerous small, slender spines. Epiproct bearing numerous hairs.

Color (in alcohol): Compound eyes black. Body generally straw colored, marked with deep brown distributed as follows: entire clypeus and labium; a band across vertex immediately above ocelli, but dipping down to include ocellar interval; large blotches involving most of thoracic pleura and terga (some blotches pale brown on terga); all coxae and femora, except a

pale preapical band on each femur. Antennae straw colored with a colorless apical band on each flagellar segment. Wings marked as indicated in the diagnosis and in Figs. 1 and 2.

Type locality: GUATEMALA: Department of Peten, Tikal. April 5, 1956, at light, I. J. Cantrall collector. The type is in my collection.

Triplocania spinosa new species (♂)

Diagnosis: Differs from the other neotropical species of its genus in wing markings, possessing a premarginal band in the forewing from vein M_3 to R_{4+5} , in contrast to a marginal band in *T. magnifica* Roesler, *T. reflexa* Roesler, and *T. marginipicta* Roesler, and no band in *T. lucida* Roesler and *T. dolosa* Roesler. Curvature of veins in forewing most similar to that of *T. reflexa*, but differing in the marked flexure of R_{2+3} , M_2 , and M_3 , and in the less marked flexure of the distal edge of the areola postica.

Measurements: Total body length 2.32 mm. (abdomen contracted); forewing length 4.44 mm.; hindwing length 3.18 mm.; posterior tibia length 2.07 mm.; posterior tarsus length— T_1 0.90 mm., T_2 0.21 mm.

Morphology: Compound eyes very large and prominent, IO/D = 0.93, PO/D = 1.00. Mouthparts typical of the Epi-psocetae, as described for the preceding species. Middle and posterior tarsi each with a single row of ctenidia, with their numbers per segment as follows: middle tarsus— T_1 20, T_2 3; posterior tarsus— T_1 30, T_2 4. Hypandrium (Fig. 3) with a small, weakly sclerotized central lobe and a pair of well sclerotized lateral lobes curving medially and bearing numerous denticles. A complex set of phallic sclerotizations dorsal to the parameres (Fig. 12).

Color (in alcohol): Compound eyes and ocellar interval black. Body generally straw colored, marked with various shades of brown. Deep brown lines indicating some of the clypeal striations; but not attaining mid-line. Bands of deep brown around antennal bases. Forewings marked as indicated in Fig. 4 and in the diagnosis. Antennae mostly straw colored with deep

brown basal and preapical bands on each of the flagellar segments, except no basal band on f_1 , and a colorless apical band on each flagellar segment.

Type locality: GUATEMALA: Department of Peten, Tikal. February 14, 1956, at light, I. J. Cantrall collector. The type is in my collection.

FAMILY EPIPSOCIDAE

***Epipsocus petenensis* new species (♀)**

Diagnosis: A species of the subgenus *Epipsocus*, near *E. latistigma* Roesler and *E. serenus* Roesler, differing markedly from either of these in the shape and color pattern of the pterostigma, and in the much larger size of the dark spot associated with the distal end of the anal vein in both fore- and hindwings.

Measurements: Total body length 2.64 mm.; forewing length 3.51 mm.; hindwing length 2.46 mm.; posterior tibia length 1.59 mm.; posterior tarsus length— T_1 0.75 mm., T_2 0.15 mm.

Morphology: IO/D = 1.33, PO/D = 1.00. Mouthparts of usual form for the Epipsocetae. Middle and posterior tarsi each with a single row of ctenidia, the numbers per segment as follows: middle tarsus— T_1 22, T_2 0; posterior tarsus— T_1 34, T_2 4. Pterostigma decidedly clavate; venation otherwise normal for the genus. Subgenital plate of usual form for the genus. Gonapophyses as in Fig. 9; second valvula bearing numerous tiny denticles on its inner edge.

Color (in alcohol): Compound eyes and ocellar interval black. Body generally straw colored marked with brown. A brown

EXPLANATION OF FIGURES

FIGS. 1-2. *Loncura splendida* n. sp. ♀, 1. forewing, 2. hindwing.

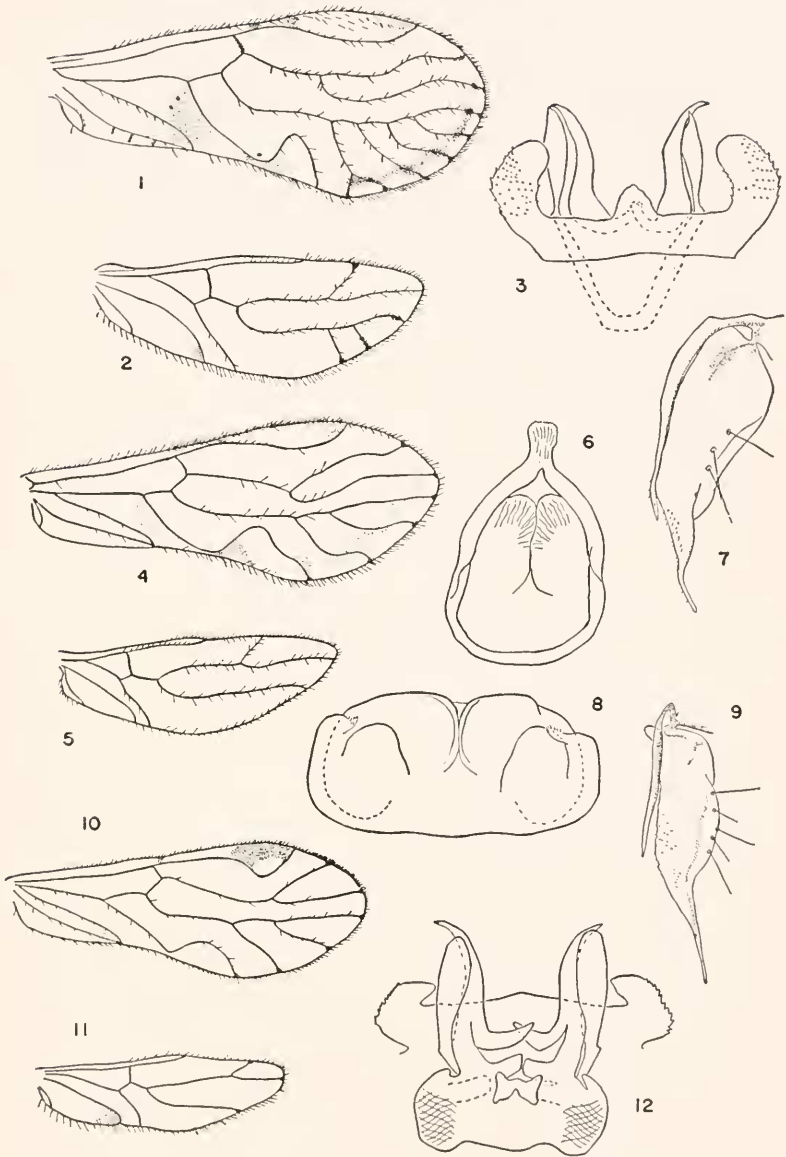
FIGS. 3-5. *Triplocania spinosa* n. sp. ♂, 3. hypandrium and phallic sclerites, ventral aspect, 4. forewing, 5. hindwing.

FIG. 6. *Ghesquierella cantralli* n. sp. ♂, phallic frame.

FIGS. 7-8. *Loncura splendida* n. sp. ♀, 7. gonapophyses, 8. interior genital plate.

FIGS. 9-11. *Epipsocus petenensis* n. sp. ♀, 9. gonapophyses, 10. forewing, 11. hindwing.

FIG. 12. *Triplocania spinosa* n. sp. ♂, hypandrium and phallic sclerites, dorsal aspect.



blotch around each antennal base, extending to ocellar interval. Brown lines along upper clypeal striae. A pair of brown spots postero-lateral to ocelli. Thoracic pleura and coxae mostly brown. Femora brown basally, paling apically. Wings mostly hyaline with brown markings as indicated in Figs. 10 and 11, and in the diagnosis. Antennae colorless.

Type locality: GUATEMALA: Department of Peten, Tikal. March 24, 1956, on laboratory table in camp, I. J. Cantrall collector. The type is in my collection.

FAMILY MYOPSOCIDAE

Lichenomima sp.

A single female was taken at a light, February 8, 1956. Although it may represent a new species, it is very similar in wing markings and genitalia to *L. sparsa* (Hagen) and an undescribed U. S. species.

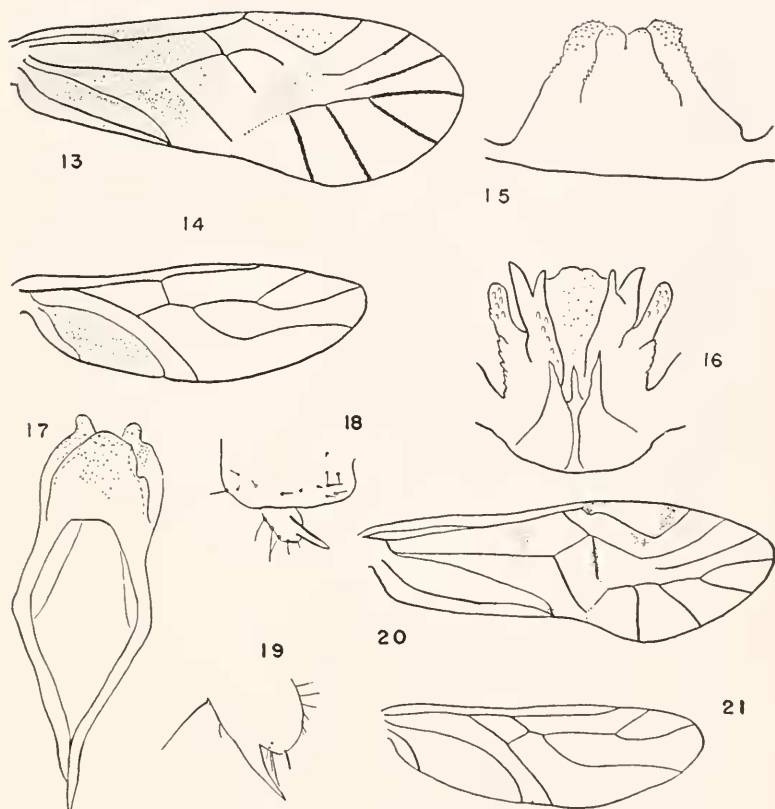
FAMILY PSOCIDAE

Psocidus tikalus new species (♂)

Diagnosis: Probably belongs in subfamily Psocinae, but its relationships otherwise unknown.

Measurements: Total body length 3.45 mm.; forewing length 4.29 mm.; hindwing length 3.18 mm.; posterior tibia length 1.86 mm.; posterior tarsus— T_1 0.60 mm., T_2 0.21 mm.

Morphology: Compound eyes very large; $IO/D = 1.06$, $PO/D = 1.00$. Ocelli large, the ocellar interval decidedly prominent. Antennae clothed in short hairs; first flagellar segment slightly thickened basally, gradually becoming narrower apically; the thickened portion bearing three discoid sensillae (flagellum broken off in second segment on left side and after third on right). All tarsi with a single row of ctenidia, the numbers per segment as follows: anterior tarsus— T_1 15, T_2 0; middle tarsus— T_1 20, T_2 0; posterior tarsus— T_1 31, T_2 5. Wing venation as in Figs. 20 and 21; forewing with tapering apex. Weak, unpigmented section of vein R_s restricted to base of R_{4+5} . Fu-



FIGS. 13-15. *Ghesquierella cantralli* n. sp. ♂, 13. forewing, 14. hindwing, 15. hypandrium.

FIGS. 16-18. *Psocidus tikalus*, n. sp. ♂, 16. hypandrium, 17. phallic frame, 18. apex of paraproct.

FIG. 19. *Ghesquierella cantralli* n. sp. ♂, apex of paraproct.

FIGS. 20-21. *Psocidus tikalus* n. sp. ♂, 20. forewing, 21. hindwing.

sion of R_s and M in forewing very short. Pterostigma deep and angular. Hypandrium (Fig. 16) nearly symmetrical, produced into three processes on each side, the processes and central area denticulate. Phallic frame shaped as in Fig. 17, apex denticulate. Each paraproct with a slender, pointed process on its apex as in Fig. 18.

Color (in alcohol): Compound eyes and ocellar interval black. Body generally pale gray marked with brown as follows: striations on upper half of clypeus; two transverse bands on vertex between eyes (both passing through ocellar interval); pair of spots on vertex postero-lateral to ocelli; anterior portions of alinota; irregular blotches on pleural regions of thorax; narrow segmental rings on abdomen. Wings marked as in Figs. 20 and 21. Legs pale gray except for cloudy apical band on each femur, and brown second tarsal segments on all legs. First flagellar segment pale brown; remainder dark brown (broken off beyond third flagellar segment).

Type locality: GUATEMALA: Department of Peten, Tikal. April 3, 1956, I. J. Cantrall collector. The type is in my collection.

Ghesquierella cantralli new species (♂)

Diagnosis: Agrees with genotype, *G. calensis* Bad., in structure of the hypandrium, shape of forewing and of most of its cells (notable exceptions being the narrower, bent cell R_{2+3} and narrower An in *G. cantralli*), presence of a mark below pterostigma and another below that in cell R_5 , and pattern of dark-bordered veins in forewing. Differs from the genotype in possessing a pair of spiny lateral areas on hypandrium, a fumose basal portion of forewing, and in shape of the apex of the phallic frame. In forewing, vein Sc joins radial stem in *G. cantralli* but not in *G. calensis*.

Measurements: Total body length 3.36 mm.; forewing length 4.93 mm.; hindwing length 3.60 mm.; posterior tibia length 2.04 mm.; posterior tarsus— T_1 0.57 mm., T_2 0.24 mm.

Morphology: Compound eyes small; IO/D = 2.33, PO/D = 0.90. Ocellar interval not prominent. Anterior ocellus smaller

than posteriors. Antennae clothed in rather long, curved hairs. First flagellar segment with two discoid sensillae near its base. Antennae broken off, but probably much longer than forewing as right antenna to basal part of f_4 equals length of forewing. Distribution of tarsal ctenidia: none on anterior tarsus; middle tarsus— T_1 15, T_2 4; posterior tarsus— T_1 23, T_2 5. Wing venation (Figs. 13 and 14) much as in the genotype, differing as indicated in the diagnosis. Hypandrium (Fig. 15) nearly symmetrical, produced apically into a central lobe bordered on each side by a row of spines, and a spiny lobe on each side. Phallic frame as in Fig. 6, its apex shaped somewhat as in *Psococerastis*. Paraprocts each with a large sensory area about midway between base and apex, and a slightly curved apical process (Fig. 19).

Color (in alcohol): Compound eyes, inner rims of ocelli, flagella, and distal two segments of maxillary palpi black. Body generally orange. Legs straw colored basally, becoming nearly black on tarsi. Forewings fumose basally, hyaline apically except for dark borders of veins and two spots below pterostigma; pterostigma orange. Hindwings hyaline except for faintly fumose anal cell.

Type locality: GUATEMALA: Department of Peten, Tikal. February 14, 1956, I. J. Cantrall collector. The type is in my collection.

Metylophorus sp.

A single male was taken April 6, 1956. It is very similar to *M. novaescotiae* (Walker), a species common throughout Eastern U. S. The only differences noted were the slightly smaller body size and proportionally much larger size of the compound eyes of the Guatemalan form. There may be differences in the numbers of teeth on the hypandrial ridges, but the extent of variation in these numbers in *M. novaescotiae* is not known. These differences may prove to be clinal or subspecific when additional material becomes available.